

ABSTRACT OF THE DISCLOSURE

The present invention provides transgenic plants with reduced levels of saturated fatty acids in the seed oil and methods of making these plants. The transgenic plants developed through this method contain reduced levels of saturated fatty acids in seed oil due to expression of a prokaryotic delta-9 desaturase enzyme (i.e. an enzyme that introduces cis double bonds at the delta-9 position of saturated fatty acids) operably linked with an endoplasmic reticulum retention and retrieval signal sequence. One example of the invention is a plant expressing a heterologous delta-9 desaturase enzyme from cyanobacterium *Anacystis nidulans*, which converts lipid-bound 16:0 and 18:0 fatty acids into corresponding 16:1 and 18:1, in operative linkage with a KKSS (SEQ ID NO:5) endoplasmic reticulum retention and retrieval signal sequence.